NUTRITION SCIENCE

Course Description: *Nutrition Science* is an interdisciplinary laboratory science course. Concepts of chemistry, biology, physics, and nutrition are applied to the production, processing, evaluation, and utilization of foods. Students use scientific methods in laboratory experiments to facilitate the understanding of the human body, food, nutrition, and science. Classroom experiences help students put scientific knowledge to practical use, making abstract concepts concrete.

The co-curricular student organization will provide students with opportunities for leadership development, personal growth, and school/community involvement.

Pre-Requisites: Physical Science or Biology or Agriscience

Recommended Credit(s): 1
This credit satisfies either one credit of life science (if team-taught with a biology teacher) or one credit of physical science (if team-taught with a chemistry teacher) required for graduation.
The University of Tennessee Board of Trustees and Tennessee Board of Regents approve this course for admission.

Recommended Grade Level: 10-12

Nutrition Science

Course Standards

Standard 1.0 Analyze the interrelationship of food, nutrition and science.

Standard 2.0 Use sound nutritional practices to create a personal profile to establish optional lifelong health habits.

Standard 3.0 Examine methodology for use of the scientific laboratory to conduct and report results of food science experiments.

Standard 4.0 Research and analyze methods used in food product development and marketing.

Standard 5.0 Evaluate a variety of changes, including chemical and physical, that affect food product quality.

Standard 6.0 Apply science process skills when analyzing the structure and composition of nutrients.

Standard 7.0 Analyze methods used and factors involved in the scientific processing of food.

Standard 8.0 Apply employability and leadership skills as an integral part of the nutrition science curriculum.

Nutrition Science
Course Standards and Expectations

Standard 1.0 Analyze the interrelationship of food, nutrition and science.

Expectations and Performance Indicators:

1.1 Compare and contrast food preparation, nutrition science and core science courses.
1.2 Summarize how technology has revolutionized food products and processing methods.
1.3 Relate the main goal of food scientists to individuals, communities, cultures and the world.

Standard 2.0 Use sound nutritional practices to create a personal profile to establish optimal lifelong health habits.

Expectations and Performance Indicators:

2.1 Use current guidelines and/or technology to determine personal nutrient intake and develop a plan for change.
2.2 Using scientific evidence examine food and nutrition claims for accuracy.
2.3 Evaluate current world health concerns to nutrition and food practices.
2.4 Examine the role of the digestive system in the body's metabolism of food.

Standard 3.0 Examine methodology for use of the scientific laboratory to conduct and report results of food science experiments.

Expectations and Performance Indicators:

3.1 Use appropriate safety techniques for the laboratory.
3.2 Identify the location and demonstrate the correct use of emergency equipment in the laboratory.
3.3 Design a laboratory experiment to demonstrate knowledge of the scientific method.
3.4 Demonstrate the ability to complete a laboratory report based on the scientific method.
3.5 Use the metric system in laboratory experiments for data collection and evaluation.

Standard 4.0 Research and analyze methods used in food product development and marketing.

Expectations and Performance Indicators:

4.1 Examine the sensory factors that make up the sensory characteristics for tasting foods.
4.2 Demonstrate controlled sensory testing and rating techniques.
4.3 Research the federal government's role in regulating label information.
4.4 Analyze and compare food claims and wordings
4.5 Develop a food label using federal guidelines for a simulated food product.

Standard 5.0 Evaluate a variety of changes, including chemical and physical, that affect food product quality.

Expectations and Performance Indicators:

5.1 Classify changes in matter as physical or chemical.
5.2 Investigate the basic organization of the modern periodic table including atomic number and atomic properties.
5.3 Differentiate between mixtures and compounds as they are represented in various food products.
5.4 Demonstrate how the major leavening agents are used in foods and describe the chemical processes observed.
5.5 Demonstrate the difference between the chemical processes of fermentation and pasteurization and explain the usage of each in food technology.

Standard 6.0 Apply science process skills when analyzing the structure and composition of nutrients.

Expectations and Performance Indicators:

6.1 Evaluate the properties and scientific functions of water in relation to food and food preparation.
6.2 Analyze the molecular structure of carbohydrates and fiber in relation to their scientific function in food and food preparation.
6.3 Analyze the properties and composition of lipids in relation to their functions in food preparation.
6.4 Evaluate the properties and scientific functions of water, carbohydrates, fiber and lipids in the body.
6.5 Describe the molecular structure of protein and the functions of protein in food.
6.6 Examine the types, functions, sources and deficiencies of minerals.
6.7 Examine the types, functions, sources and deficiencies of vitamins.

Standard 7.0 Analyze methods used and factors involved in the scientific processing of food.

Expectations and Performance Indicators:

7.1 Research the use of additives in food products and food production.
7.2 Evaluate current trends in commercial food preservation; including thermal preservation, dehydration and irradiation.
7.3 Compare the processes of fermentation and curing.
7.4 Evaluate the causes and prevention of food contamination and spoilage.
7.5 Analyze the science involved in developing new food products.

Standard 8.0 Apply employability and leadership skills as an integral part of the nutrition science curriculum.

Expectations and Performance Indicators:

8.1 Participate in *Family, Community and Career Leaders of America (FCCLA)* co-curricular student organization activities that enhances nutrition science skills.
8.2 Practice leadership, citizenship and teamwork skills when planning and implementing collaborative projects.